

Methods: Five qualitative focus group interviews were conducted at three Korean Medicine Hospitals. Two to four participants from the same group (real or sham acupuncture) in the RCT of acupuncture for CLBP discussed their experiences with and perceptions of the clinical trial and the acupuncture treatment. Transcribed data were read independently by researchers and analyzed to categorize information and identify themes.

Results: A total of 14 participants were included. Most of them reported positive aspects of being a study subject and a patient. They recognized the differences between experimental and real-world clinical settings, such as formal procedures of treatment and different acupuncture devices. Participants also expressed a weaker sensation of acupuncture compared to their previous experiences. Especially, they were well aware of the roles of the 'subjects' themselves; thus, they observed the changes in their symptoms closely. As the subjects were generally satisfied with their treatment and they had a good feeling about acupuncture after the trial, they expressed their willingness to participate in future clinical trials of acupuncture.

Conclusions: Our finding suggests that the experiences of Korean patients participating in an RCT were generally positive. Their tendency to perform the 'subject' role might have affected the trial's process and/or the overall results.

Key words: acupuncture; RCT; qualitative study; focus group interview; low back pain

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Anti-inflammatory Effect of *Polygoni Avicularis Herba* Herbal-acupuncture at KI10 on LPS-Induced Nephritis in Rats

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Abstract

Objective: This study aimed to evaluate the effects of *Polygoni avicularis Herba* herbal acupuncture (PaH-HA) at KI10 (Umgok) on nephritis induced by lipopolysaccharide (LPS) in rats.

Methods: Rats were allocated into normal, control, and three experimental groups. The rats in the control group were intraperitoneally injected with LPS for nephritis induction. The rats in the groups of experiment 1, experiment 2, and experiment 3 were treated with a single needle prick, a saline injection, and PaH-HA, respectively, at KI10 three times a week and were then injected with LPS. To evaluate the effects of PaH-HA at KI10, we measured the white blood cell (WBC) count in the blood, serum cytokine-induced neutrophil chemoattractant-1 (CINC-1), renal tumor necrosis factor- α (TNF- α) and renal myeloperoxidase (MPO).

Results: Needle prick at KI10 suppressed the increase in the WBC in the blood and the CINC-1 in serum for the LPS-stimulated rats. Saline injection at KI10 suppressed the increase in the WBC in the blood. PaH-HA at KI10 suppressed the increases in the WBC in the blood, the CINC-1 in serum, and the MPO in the kidney for the LPS-stimulated rats.

Conclusions: PaH-HA at KI10 has an anti-inflammatory effect on LPS-induced nephritis in rats, and a synergism may exist between KI10 (Umgok) stimulation and the injection of a PaH-HA solution.

Key words: herbal-acupuncture; KI10; *Polygoni avicularis Herba*; LPS-induced nephritis

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Rehmannia Glutinosa Pharmacopuncture Solution Regulates Functional Activation, Fc ϵ RI Expression, and Signaling Events in Mast Cells

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Abstract

Objectives: *Rehmannia glutinosa* pharmacopuncture solution (RGPS) was investigated to determine both its anti-allergic inflammatory effects on mast cells and its detailed mechanism of actions.

Methods: We investigated whether RGPS suppress cytokines, enzymes, FcεRI expression and FcεRI-mediated signaling in RBL-2H3 cells stimulated with anti-DNP IgE/DNP-HSA. The suppressive effects of RGPS on the levels of cytokines such as IL-1β, IL-6 and GM-CSF were measured using enzyme-linked immunospecific <comment>Please check the spelling of the terms "enzyme-linked", "phosphorylation", "lyophilizing", "gargarizanz", and "cinobufagen".</comment> assay (ELISA). The mRNA expression levels of cytokines, enzymes (HDC2, COX-1, COX-2 and 5LO) and FcεRI αβγ subunits were measured using reverse transcription polymerase chain reaction (RT-PCR) method. The activation of FcεRI-mediated signaling was examined using Western blot analyses.

Results: RGPS suppressed production of proinflammatory cytokines (IL-1β, IL-6, and GM-CSF) in stimulated RBL-2H3 cells significantly ($p < 0.05$). RGPS also suppressed mRNA expression of inflammatory enzymes (HDC2, COX-1, COX-2, 5LO). In addition, mRNA expression levels of FcεRIα, FcεRIβ and FcεRIγ were lowered by treatment with RGPS. Finally, RGPS prevented phosphorylation of Lyn, Syk, LAT, Gab2, PLC γ1/2, PI3K, Akt, cPLA2 and IκBα.

Conclusions: RGPS effectively suppresses mast cell activations such as degranulation and inflammatory response via down-regulation of the FcεRI-mediated signaling pathways in IgE/Ag-stimulated mast cells.

Key words: Rehmannia glutinosa pharmacopuncture solution (RGPS); cytokine, enzyme; FcεRI expression; FcεRI-mediated signaling

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Analytical Research to Determine the effects of the Components of ONGABO on the Viability of HepG2 Cancer Cells by Using the Sovereign, Minister, Assistant and Courier Principle (君臣佐使論)

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Abstract

Objectives: This study used the basic principle of Oriental medicine, the sovereign, minister, assistant and courier principle (君臣佐使論) to investigate the effects of the component of ONGABO, which is composed of Ginseng Radix (Red Ginseng), Angelica Gigantis Radix, Schisandrae Fructus, Cuscuta Semen and Curcumae tuber on the viability of HepG2 cells.

Methods: Single and mixed extracts of the component of ONGABO were prepared by lyophilizing powder of Red Ginseng (6-year root from Kanghwa), Angelica Gigantis Radix, Schisandrae Fructus, Cuscuta Semen, Curcumae Tuber (from Omniherb Co., Ltd., Korea) at the laboratory of herbal medicine in Woosuk University and were eluted after being macerated with 100% ethanol for three days. The cell viability of HepG2 was determined by using an absorptiometric analysis with PrestoBlue (Invitrogen) reagent after the plate had been incubated for 48 hours. All of the experiments were repeated three times to obtain the average value and standard deviation. The statistical analysis was done and the correlation factor was obtained by using Microsoft Office Excel 2007 and Origin 6.0 software.

Results: Although Ginseng Radix (Red Ginseng) and Schisandrae Fructus did not enhance the viability of HepG2 cells, they were shown to provide protection of those cells. On the other hand, Angelica Gigantis Radix decreased the viability of HepG2 cells significantly, Cuscuta Semen and Curcumae Tuber had a small or no effect on the viability of HepG2 cells.

Conclusions: In the sovereign, minister, assistant and courier principle (君臣佐使論), Ginseng Radix (Red Ginseng) corresponds to the sovereign component because it provides cell protection effects, Angelica Gigantis Radix corresponds to minister medicinal because it kills cells, Schisandrae Fructus corresponds to the assistant medicinal to help red ginseng having cell protect effects. Cuscuta Semen and Curcumae Tuber correspond to the courier medicinal having no effect in cell viability in HepG2. We hope this study provides motivation for advanced research on the sovereign, minister, assistant and courier principle.

Key words: assistant and courier principle; cell viability; HepG2, minister; ONGABO, sovereign

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Comparative Analysis of the Bufonis Venenum by Using TLC, HPLC, and LC-MS for Different Extraction Methods

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Abstract

Objectives: Toad venom, called Chan-Su, is a traditional Oriental medicine secreted from the auricular and the skin glands of the *Bufo bufo gargarizans* Cantor or *B. melanostictus* Schneider and has been widely used in China, Korea and other parts of Asia for the treatment of pain, heart conditions, and cancer. We examined the concentrations of the main chemical constituents within a commercially available toad venom product and compared the levels for different extraction methods.

Methods: Toad venom was extracted using either cold or hot water, ethanol (EtOH), methanol (MeOH), or ethyl acetate (EtOAc), was fractionated using precipitation or reflux, and was then analyzed using thin layer chromatography (TLC), high-performance liquid chromatography (HPLC), and liquid chromatography - mass spectrometry (LC-MS). Individual components were identified by comparisons of the retention times, the ultraviolet spectra, and mass spectra and differences in chemical constituents for different solvents and extraction methods are presented.

Results: Components with authentic standards, including serotonin and bufadienolides (cinobufagen, bufalin, cinobufalin, and resibufogenin), were detected. The water extract of toad venom contained the greatest amount of serotonin (75.7 ± 0.1 mg/g), but very small amounts of bufadienolides (3.8 ± 0.0 mg/g). In contrast, the use of MeOH or EtOH extraction solutions resulted in 5-26 times higher concentrations of bufadienolides, with only trace amounts of serotonin. The relative and the absolute concentrations of the component also varied based on the extraction method; i.e., EtOH extracts yielded the greatest total amounts of bufadienolides, and EtOAc precipitation had the lowest amounts of bufadienolides.

Conclusions: Toad venom consists of serotonin and several bufadienolides, and the choice of solvent to extract chemical constituents is important as a way to enrich the purported active components for treating different conditions.

Key words: *Bufonis venenum*; bufadienolides; bufotoxin; HPLC; LC/MS; TLC

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